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REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only	
02124263	
International Application No.	
31 JUL 2002 (31.07.02)	
International Filing Date	
PCT INTERNATIONAL	
APPLICATION FORM	
Name of receiving Office and PCT International Application	

Applicant's or agent's file reference  
(if desired) (12 characters maximum) PU020353

Box No. I <b>TITLE OF INVENTION</b> METHOD AND APPARATUS FOR EXTRACTING THE PHASE OF AN ORTHOGONAL FREQUENCY DIVISION MULTIPLEXING (OFDM) SIGNAL SAMPLE		
Box No. II <b>APPLICANT</b> <input type="checkbox"/> This person is also inventor		
<p>Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)</p> <p>THOMSON LICENSING S.A. 46, Quai A. Le Gallo 92648 Boulogne Cedex France</p>		<input type="checkbox"/> Telephone No. +33141865000 <input type="checkbox"/> Facsimile No. +33141865633 <input type="checkbox"/> Teleprinter No. <input type="checkbox"/> Applicant's registration No. with the Office
State (that is, country) of nationality: FR		State (that is, country) of residence: FR
<p>This person is applicant <input type="checkbox"/> all designated States <input checked="" type="checkbox"/> all designated States except the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box for the purposes of:</p>		<input type="checkbox"/> the United States of America only <input type="checkbox"/> the Supplemental Box
Box No. III <b>FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)</b>		
<p>Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)</p> <p>BELOTSERKOVSKY, Maxim Borisovich 9108 Bryant Lane 3A Indianapolis, Indiana 46250 United States of America</p>		<p>This person is:</p> <p><input type="checkbox"/> applicant only  <input checked="" type="checkbox"/> applicant and inventor  <input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)</p> <p>Applicant's registration No. with the Office</p>
State (that is, country) of nationality: US		State (that is, country) of residence: US
<p>This person is applicant <input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America only <input checked="" type="checkbox"/> the States indicated in the Supplemental Box for the purposes of:</p>		<input type="checkbox"/> the United States of America only <input type="checkbox"/> the Supplemental Box
<input checked="" type="checkbox"/> Further applicants and/or (further) inventors are indicated on a continuation sheet.		
Box No. IV <b>AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE</b>		
<p>The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:</p> <p>TRIPOLI, Joseph S.; LAKS, Joseph J.; KURDYLA, Ronald H.; DUFFY, Vincent E.; NAVON, Jeffrey M. THOMSON multimedia Licensing Inc. P.O. Box 5312 Princeton, New Jersey 08540 US</p>		<input checked="" type="checkbox"/> agent <input type="checkbox"/> common representative
<p>Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)</p> <p>TRIPOLI, Joseph S.; LAKS, Joseph J.; KURDYLA, Ronald H.; DUFFY, Vincent E.; NAVON, Jeffrey M. THOMSON multimedia Licensing Inc. P.O. Box 5312 Princeton, New Jersey 08540 US</p>		<input type="checkbox"/> Telephone No. 1-317-587-4019 <input type="checkbox"/> Facsimile No. 1-609-734-6888 <input type="checkbox"/> Teleprinter No. 219966 <input type="checkbox"/> Agent's registration No. with the Office
<p><input type="checkbox"/> Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.</p>		

## Continuation of Box No. III FURTHER APPLICANTS AND/OR (FURTHER) INVENTOR(S)

If none of the following sub-boxes is used, this sheet should not be included in the request.

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

DEMOULIN, Vincent  
2, rue de Clayes  
35137 Pleumeleuc  
France

This person is:

- applicant only  
 applicant and inventor  
 inventor only (If this check-box is marked, do not fill in below.)

Applicant's registration No. with the Office

State (that is, country) of nationality:  
FR

State (that is, country) of residence:  
FR

This person is applicant  all designated  all designated States except  the United States of America  the United States of America only  the States indicated in the Supplemental Box for the purposes of: States

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

LITWIN, Jr., Louis Robert  
34-14 Quail Ridge Drive  
Plainsboro, New Jersey 08536  
United States of America

This person is:

- applicant only  
 applicant and inventor  
 inventor only (If this check-box is marked, do not fill in below.)

Applicant's registration No. with the Office

State (that is, country) of nationality:  
US

State (that is, country) of residence:  
US

This person is applicant  all designated  all designated States except  the United States of America  the United States of America only  the States indicated in the Supplemental Box for the purposes of: States

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

State (that is, country) of nationality:  
US

State (that is, country) of residence:

This person is applicant  all designated  all designated States except  the United States of America  the United States of America only  the States indicated in the Supplemental Box for the purposes of: States

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant  all designated  all designated States except  the United States of America  the United States of America only  the States indicated in the Supplemental Box for the purposes of: States

This person is:

- applicant only  
 applicant and inventor  
 inventor only (If this check-box is marked, do not fill in below.)

Applicant's registration No. with the Office

Further applicants and/or (further) inventors are indicated on another continuation sheet.

## Box No.V DESIGNATION OF STATES

Mark the applicable check-boxes below; at least one must be marked.

The following designations are hereby made under Rule 4.9(a):

## Regional Patent

- AP ARIPO Patent:** **GH** Ghana, **GM** Gambia, **KE** Kenya, **LS** Lesotho, **MW** Malawi, **MZ** Mozambique, **SD** Sudan, **SL** Sierra Leone, **SZ** Swaziland, **TZ** United Republic of Tanzania, **UG** Uganda, **ZM** Zambia, **ZW** Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT (if other kind of protection or treatment desired, specify on dotted line) .....
- EA Eurasian Patent:** **AM** Armenia, **AZ** Azerbaijan, **BY** Belarus, **KG** Kyrgyzstan, **KZ** Kazakhstan, **MD** Republic of Moldova, **RU** Russian Federation, **TJ** Tajikistan, **TM** Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT .....
- EP European Patent:** **AT** Austria, **BE** Belgium, **CH & LI** Switzerland and Liechtenstein, **CY** Cyprus, **DE** Germany, **DK** Denmark, **ES** Spain, **FI** Finland, **FR** France, **GB** United Kingdom, **GR** Greece, **IE** Ireland, **IT** Italy, **LU** Luxembourg, **MC** Monaco, **NL** Netherlands, **PT** Portugal, **SE** Sweden, **TR** Turkey, and any other State which is a Contracting State of the European Patent Convention and of the PCT .....
- OA OAPI Patent:** **BF** Burkina Faso, **BJ** Benin, **CF** Central African Republic, **CG** Congo, **CI** Cote d'Ivoire, **CM** Cameroon, **GA** Gabon, **GN** Guinea, **GQ** Equatorial Guinea, **GW** Guinea-Bissau, **ML** Mali, **MR** Mauritania, **NE** Niger, **SN** Senegal, **TD** Chad, **TG** Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (if other kind of protection or treatment desired, specify on dotted line) .....

## National Patent (if other kind of protection or treatment desired, specify on dotted line):

- |  |   |   |
|--|---|---|
| <input checked="" type="checkbox"/> <b>AE</b> United Arab Emirates                         | <input checked="" type="checkbox"/> <b>GM</b> Gambia  | <input checked="" type="checkbox"/> <b>NZ</b> New Zealand .....                 |
| <input checked="" type="checkbox"/> <b>AG</b> Antigua and Barbuda                          | <input checked="" type="checkbox"/> <b>HR</b> Croatia .....                                   | <input checked="" type="checkbox"/> <b>OM</b> Oman .....                        |
| <input checked="" type="checkbox"/> <b>AL</b> Albania .....                                | <input checked="" type="checkbox"/> <b>HU</b> Hungary .....                                   | <input checked="" type="checkbox"/> <b>PH</b> Philippines .....                 |
| <input checked="" type="checkbox"/> <b>AM</b> Armenia .....                                | <input checked="" type="checkbox"/> <b>ID</b> Indonesia .....                                 | <input checked="" type="checkbox"/> <b>PL</b> Poland .....                      |
| <input checked="" type="checkbox"/> <b>AT</b> Austria .....                                | <input checked="" type="checkbox"/> <b>IL</b> Israel .....                                    | <input checked="" type="checkbox"/> <b>PT</b> Portugal .....                    |
| <input checked="" type="checkbox"/> <b>AU</b> Australia .....                              | <input checked="" type="checkbox"/> <b>IN</b> India .....                                     | <input checked="" type="checkbox"/> <b>RO</b> Romania .....                     |
| <input checked="" type="checkbox"/> <b>AZ</b> Azerbaijan .....                             | <input checked="" type="checkbox"/> <b>IS</b> Iceland .....                                   | <input checked="" type="checkbox"/> <b>RU</b> Russian Federation .....          |
| <input checked="" type="checkbox"/> <b>BA</b> Bosnia and Herzegovina .....                 | <input checked="" type="checkbox"/> <b>JP</b> Japan .....                                     | <input checked="" type="checkbox"/> <b>SD</b> Sudan .....                       |
| <input checked="" type="checkbox"/> <b>BB</b> Barbados .....                               | <input checked="" type="checkbox"/> <b>KE</b> Kenya .....                                     | <input checked="" type="checkbox"/> <b>SE</b> Sweden .....                      |
| <input checked="" type="checkbox"/> <b>BG</b> Bulgaria .....                               | <input checked="" type="checkbox"/> <b>KG</b> Kyrgyzstan .....                                | <input checked="" type="checkbox"/> <b>SG</b> Singapore .....                   |
| <input checked="" type="checkbox"/> <b>BR</b> Brazil .....                                 | <input checked="" type="checkbox"/> <b>KP</b> Democratic People's Republic of Korea .....     | <input checked="" type="checkbox"/> <b>SI</b> Slovenia .....                    |
| <input checked="" type="checkbox"/> <b>BY</b> Belarus .....                                | <input checked="" type="checkbox"/> <b>KR</b> Republic of Korea .....                         | <input checked="" type="checkbox"/> <b>SK</b> Slovakia .....                    |
| <input checked="" type="checkbox"/> <b>BZ</b> Belize .....                                 | <input checked="" type="checkbox"/> <b>KZ</b> Kazakhstan .....                                | <input checked="" type="checkbox"/> <b>SL</b> Sierra Leone .....                |
| <input checked="" type="checkbox"/> <b>CA</b> Canada .....                                 | <input checked="" type="checkbox"/> <b>LC</b> Saint Lucia .....                               | <input checked="" type="checkbox"/> <b>TJ</b> Tajikistan .....                  |
| <input checked="" type="checkbox"/> <b>CH &amp; LI</b> Switzerland and Liechtenstein ..... | <input checked="" type="checkbox"/> <b>LK</b> Sri Lanka .....                                 | <input checked="" type="checkbox"/> <b>TM</b> Turkmenistan .....                |
| <input checked="" type="checkbox"/> <b>CN</b> China .....                                  | <input checked="" type="checkbox"/> <b>LR</b> Liberia .....                                   | <input checked="" type="checkbox"/> <b>TN</b> Tunisia .....                     |
| <input checked="" type="checkbox"/> <b>CO</b> Colombia .....                               | <input checked="" type="checkbox"/> <b>LS</b> Lesotho .....                                   | <input checked="" type="checkbox"/> <b>TR</b> Turkey .....                      |
| <input checked="" type="checkbox"/> <b>CR</b> Costa Rica .....                             | <input checked="" type="checkbox"/> <b>LT</b> Lithuania .....                                 | <input checked="" type="checkbox"/> <b>TT</b> Trinidad and Tobago .....         |
| <input checked="" type="checkbox"/> <b>CU</b> Cuba .....                                   | <input checked="" type="checkbox"/> <b>LU</b> Luxembourg .....                                | <input checked="" type="checkbox"/> <b>TZ</b> United Republic of Tanzania ..... |
| <input checked="" type="checkbox"/> <b>CZ</b> Czech Republic .....                         | <input checked="" type="checkbox"/> <b>LV</b> Latvia .....                                    | <input checked="" type="checkbox"/> <b>UA</b> Ukraine .....                     |
| <input checked="" type="checkbox"/> <b>DE</b> Germany .....                                | <input checked="" type="checkbox"/> <b>MA</b> Morocco .....                                   | <input checked="" type="checkbox"/> <b>UG</b> Uganda .....                      |
| <input checked="" type="checkbox"/> <b>DK</b> Denmark .....                                | <input checked="" type="checkbox"/> <b>MD</b> Republic of Moldova .....                       | <input checked="" type="checkbox"/> <b>US</b> United States of America .....    |
| <input checked="" type="checkbox"/> <b>DM</b> Dominica .....                               | <input checked="" type="checkbox"/> <b>MG</b> Madagascar .....                                | <input checked="" type="checkbox"/> <b>UZ</b> Uzbekistan .....                  |
| <input checked="" type="checkbox"/> <b>DZ</b> Algeria .....                                | <input checked="" type="checkbox"/> <b>MK</b> The former Yugoslav Republic of Macedonia ..... | <input checked="" type="checkbox"/> <b>VN</b> Viet Nam .....                    |
| <input checked="" type="checkbox"/> <b>EC</b> Ecuador .....                                | <input checked="" type="checkbox"/> <b>MN</b> Mongolia .....                                  | <input checked="" type="checkbox"/> <b>YU</b> Yugoslavia .....                  |
| <input checked="" type="checkbox"/> <b>EE</b> Estonia .....                                | <input checked="" type="checkbox"/> <b>MW</b> Malawi .....                                    | <input checked="" type="checkbox"/> <b>ZA</b> South Africa .....                |
| <input checked="" type="checkbox"/> <b>ES</b> Spain .....                                  | <input checked="" type="checkbox"/> <b>MX</b> Mexico .....                                    | <input checked="" type="checkbox"/> <b>ZM</b> Zambia .....                      |
| <input checked="" type="checkbox"/> <b>FI</b> Finland .....                                | <input checked="" type="checkbox"/> <b>MZ</b> Mozambique .....                                | <input checked="" type="checkbox"/> <b>ZW</b> Zimbabwe .....                    |
| <input checked="" type="checkbox"/> <b>GB</b> United Kingdom .....                         | <input checked="" type="checkbox"/> <b>NO</b> Norway .....                                    |   |
| <input checked="" type="checkbox"/> <b>GD</b> Grenada .....                                |   |   |
| <input checked="" type="checkbox"/> <b>GE</b> Georgia .....                                |   |   |
| <input checked="" type="checkbox"/> <b>GH</b> Ghana .....                                  |   |   |

Check-boxes below reserved for designating States which have become party to the PCT after issuance of this sheet:

- |                                |                                |                                |
|--------------------------------|--------------------------------|--------------------------------|
| <input type="checkbox"/> ..... | <input type="checkbox"/> ..... | <input type="checkbox"/> ..... |
| <input type="checkbox"/> ..... | <input type="checkbox"/> ..... | <input type="checkbox"/> ..... |

**Precautionary Designation Statement:** In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)

**Box No. VI PRIORITY CLAIM**

The priority of the following earlier application(s) is hereby claimed:

Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application: country	regional application:*	international application: receiving Office
item (1)				
item (2)				
item (3)				
item (4)				
item (5)				

 Further priority claims are indicated in the Supplemental Box.

The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of this international application is the receiving Office) identified above as:

all items     item (1)     item (2)     item (3)     item (4)     item (5)     other, see  
Supplemental Box

\* Where the earlier application is an ARIPO application, indicate at least one country party to the Paris Convention for the Protection of Industrial Property or one Member of the World Trade Organization for which that earlier application was filed (Rule 4.10(b)(ii)): .....

**Box No. VII INTERNATIONAL SEARCHING AUTHORITY**

**Choice of International Searching Authority (ISA)** (if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):

ISA/ US.....

**Request to use results of earlier search; reference to that search** (if an earlier search has been carried out by or requested from the International Searching Authority):

Date (day/month/year)

Number

Country (or regional Office)

**Box No. VIII DECLARATIONS**

The following declarations are contained in Boxes Nos. VIII (i) to (v) (mark the applicable check-boxes below and indicate in the right column the number of each type of declaration):

Number of declarations

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Box No. VIII (i)   | Declaration as to the identity of the inventor   | : |
| <input type="checkbox"/> Box No. VIII (ii)  | Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent             | : |
| <input type="checkbox"/> Box No. VIII (iii) | Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application | : |
| <input type="checkbox"/> Box No. VIII (iv)  | Declaration of inventorship (only for the purposes of the designation of the United States of America)                               | : |
| <input type="checkbox"/> Box No. VIII (v)   | Declaration as to non-prejudicial disclosures or exceptions to lack of novelty   | : |

## Box No. IX CHECK LIST; LANGUAGE OF FILING

This international application contains:		This international application is accompanied by the following item(s) (mark the applicable check-boxes below and indicate in right column the number of each item):		Number of items
(a) the following number of sheets in paper form:		1. <input checked="" type="checkbox"/> fee calculation sheet 2. <input type="checkbox"/> original separate power of attorney 3. <input checked="" type="checkbox"/> original general power of attorney 4. <input type="checkbox"/> copy of general power of attorney; reference number, if any: ..... 5. <input type="checkbox"/> statement explaining lack of signature 6. <input type="checkbox"/> priority document(s) identified in Box No. VI as item(s): ..... 7. <input type="checkbox"/> translation of international application into (language): ..... 8. <input type="checkbox"/> separate indications concerning deposited microorganism or other biological material 9. <input type="checkbox"/> sequence listing in computer readable form (indicate also type and number of carriers (diskette, CD-ROM, CD-R or other))		
request (including declaration sheets) : 5	description (excluding sequence listing part) : 10	claims : 5	abstract : 1	
drawings : 5				
<b>Sub-total number of sheets</b> : 26				
sequence listing part of description (actual number of sheets if filed in paper form, whether or not also filed in computer readable form; see (b) below) : .....  <b>Total number of sheets</b> : 26				
(b) sequence listing part of description filed in computer readable form		(i) <input type="checkbox"/> only (under Section 801 (a)(i)) (ii) <input type="checkbox"/> in addition to being filed in paper form (under Section 801 (a)(ii))		
Type and number of carriers (diskette, CD-ROM, CD-R or other) on which the sequence listing part is contained (additional copies to be indicated under item 9(ii), in right column): .....		(i) <input type="checkbox"/> copy submitted for the purposes of international search under Rule 13ter only (and not as part of the international application) (ii) <input type="checkbox"/> (only where check-box (b)(i) or (b)(ii) is marked in left column) additional copies including, where applicable, the copy for the purposes of international search under Rule 13ter (iii) <input type="checkbox"/> together with relevant statement as to the identity of the copy or copies with the sequence listing part mentioned in left column		
		10. <input checked="" type="checkbox"/> other (specify): PTO-1382 & Return Postcard Receipt		2
Figure of the drawings which should accompany the abstract: 5	Language of filing of the international application: ENGLISH			

## Box No. X SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).



Ronald H. Kurdyla, Manager Patent Operations  
THOMSON multimedia Licensing Inc.

(31.07.02)

For receiving Office use only		2. Drawings:	
1. Date of actual receipt of the purported international application: 3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application: 4. Date of timely receipt of the required corrections under PCT Article 11(2): 5. International Searching Authority (if two or more are competent): ISA/ US		<input type="checkbox"/> received: <input type="checkbox"/> not received:	
6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid			

For International Bureau use only		
Date of receipt of the record copy by the International Bureau:		

12/01/04  
PCT

10/08/31 OCT 2002

## POWER OF ATTORNEY

(for an international application filed under the Patent Cooperation Treaty)  
(PCT Rule 90.4)

The undersigned applicant(s) (Names should be indicated as they appear in the request):

BELOTSEKOVSKY, Maxim Borisovich  
DEMOULIN, Vincent  
LITWIN, Jr., Louis Robert

hereby appoints (appoint) the following person as:  agent  common representative

Name and address  
(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

TRIPOLI, Joseph S.

THOMSON multimedia Licensing Inc.

LAKS, Joseph J.

P. O. Box 5312

KURDYLA, Ronald H.

Princeton, New Jersey 08540

DUFFY, Vincent E.

United States of America

NAVON, Jeffrey M.

to represent the undersigned before  all the competent International Authorities  
 the International Searching Authority only  
 the International Preliminary Examining Authority only

in connection with the international application identified below:

Title of the invention:

METHOD AND APPARATUS FOR EXTRACTING THE PHASE OF AN  
ORTHOGONAL FREQUENCY DIVISION MULTIPLEXING (OFDM)  
SIGNAL SAMPLE

Applicant's or agent's file reference: PU020353  
International application number (if already available):

filed with the following Office UNITED STATES PATENT & TRADEMARK OFFICE as receiving Office and to make or receive payments on behalf of the undersigned.

Signature of the applicant(s) (where there are several applicants, each of them must sign; next to each signature, indicate the name of the person signing and the capacity in which the person signs, if such capacity is not obvious from reading the request or this power):

Maxim Borisovich Belotserkovsky  
MAXIM BORISOVICH BELOTSEKOVSKY

July 29  
2002

VINCENT DEMOULIN

2002

Louis Robert Litwin Jr.

10-30

2002

LOUIS ROBERT LITWIN, JR.

**POWER OF ATTORNEY**  
**THOMSON LICENSING S.A.**

We,

THOMSON LICENSING S.A.  
46, quai Alphonse Le Gallo  
92648 Boulogne Cedex - France

do hereby grant

Joseph S. Tripoli  
Senior Vice President  
THOMSON multimedia Licensing Incorporated  
Two Independence Way  
Princeton, New Jersey 08540

a revocable, non-exclusive and delegable power of attorney to act for us (including the signing of requisite documents) in proceedings concerning patents and applications for patents, including international and other multi-country patents and applications for patents, in our name in the Patent Offices in all countries worldwide from January 1, 1999.

Dated this 6th day of APRIL, in the year 1999.



Signed :

Didier HUCK  
Chairman of the Board of Directors

# PCT

## POWER OF ATTORNEY

(for an international application filed under the Patent Cooperation Treaty)  
(PCT Rule 90.4)

The undersigned applicant(s) (Names should be indicated as they appear in the request):

BELOTSERKOVSKY, Maxim Borisovich  
DEMOULIN, Vincent  
LITWIN, Jr., Louis Robert

hereby appoints (appoint) the following person as:  agent  common representative

**Name and address**

(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

TRIPOLI, Joseph S.	THOMSON multimedia Licensing Inc.
LAKS, Joseph J.	P. O. Box 5312
KURDYLA, Ronald H.	Princeton, New Jersey 08540
DUFFY, Vincent E.	United States of America
NAVON, Jeffrey M.	

to represent the undersigned before  all the competent International Authorities  
 the International Searching Authority only  
 the International Preliminary Examining Authority only

in connection with the international application identified below:

**Title of the invention:** METHOD AND APPARATUS FOR EXTRACTING THE PHASE OF AN  
ORTHOGONAL FREQUENCY DIVISION MULTIPLEXING (OFDM)  
SIGNAL SAMPLE

**Applicant's or agent's file reference:** PU020353  
**International application number (if already available):**

filed with the following Office UNITED STATES PATENT & TRADEMARK OFFICE as receiving Office and to make or receive payments on behalf of the undersigned.

**Signature of the applicant(s)** (where there are several applicants, each of them must sign; next to each signature, indicate the name of the person signing and the capacity in which the person signs, if such capacity is not obvious from reading the request or this power):

MAXIM BORISOVICH BELOTSERKOVSKY

2002

VINCENT DEMOULIN

07/31/ 2002

LOUIS ROBERT LITWIN, JR.

2002

POWER OF ATTORNEY  
THOMSON LICENSING S.A.

We,

THOMSON LICENSING S.A.  
46, Quai A. Le Gallo  
92648 Boulogne Cedex  
France

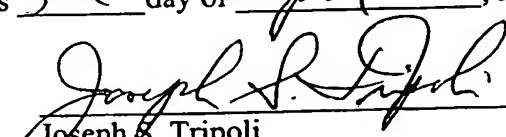
do hereby grant

Harvey D. Fried  
Dennis H. Irlbeck  
Joseph J. Laks  
Irwin M. Krittman  
Ronald H. Kurdyla  
Robert D. Shedd  
Vice Presidents and Managers  
Thomson Multimedia Licensing Inc.  
Two Independence Way  
Princeton, New Jersey 08540

a revocable, non-exclusive and delegable power of attorney to act for us (including the signing of requisite documents) in proceedings concerning patents and applications for patents, including international and other multi-country patents and applications for patents, in our name in the Patent Offices in all countries worldwide from January 1, 1999.

DATED this 3<sup>rd</sup> day of April, in the year 2002.

SIGNED

  
Joseph S. Tripoli  
Senior Vice President  
Thomson Multimedia Licensing Inc. and  
Attorney In Fact for  
THOMSON LICENSING S.A.

WITNESS: Leandra Fornarotto April 3, 2002  
DATE

POWER OF ATTORNEY  
THOMSON LICENSING S.A.

THOMSON LICENSING S.A.  
46, Quai A. Le Gallo  
92648 Boulogne Cedex, France

does hereby grant

Vincent E. Duffy  
*Patent Counsel*  
Thomson Multimedia Licensing Inc.  
Two Independence Way  
Princeton, New Jersey 08543

a revocable, non-exclusive and delegable power of attorney to act for us (including the signing of requisite documents) in proceedings concerning patents and applications for patents, including international and other multi-country patents and applications for patents, in our name in the Patent Offices in all countries worldwide from January 1, 1999.

DATED this 21st day of December, 1999.

SIGNED *Irwin M. Krittman*  
Irwin M. Krittman  
Vice President  
Thomson Multimedia Licensing Inc. and  
Attorney In Fact for  
THOMSON LICENSING S.A.

WITNESS *David Fornaiotto*

POWER OF ATTORNEY  
THOMSON LICENSING S.A.

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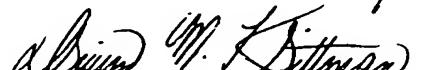
does hereby grant

Jeffrey M. Navon  
*Sr. Patent Counsel*  
*Thomson Multimedia Licensing Inc.*  
*Two Independence Way*  
*Princeton, New Jersey 08543*

a revocable, non-exclusive and delegable power of attorney to act for us (including the signing of requisite documents) in proceedings concerning patents and applications for patents, including international and other multi-country patents and applications for patents, in our name in the Patent Offices in all countries worldwide from December 1, 2001.

DATED this 18th day of January, 2002.

SIGNED



*Irwin M. Krittman*  
*Vice President*  
*Thomson Multimedia Licensing Inc. and*  
*Attorney In Fact for*  
*THOMSON LICENSING S.A.*

WITNESS



**PCT**  
**FEE CALCULATION SHEET**  
**Annex to the Request**

For receiving Office use only

PTO 02/24/2002  
International Application No. 31 JUL 2002 (31.07.02)  
Date stamp of the receiving Office

Applicant's or agent's file reference PU020353

Applicant  
THOMSON LICENSING S.A.

**CALCULATION OF PRESCRIBED FEES**

1. TRANSMITTAL FEE ..... 240.00 T  
2. SEARCH FEE ..... 700.00 S

International search to be carried out by ISA/US

(If two or more International Searching Authorities are competent to carry out the international search, indicate the name of the Authority which is chosen to carry out the international search.)

3. INTERNATIONAL FEE

**Basic Fee**

Where item (b) of Box No. IX applies, enter Sub-total number of sheets } 26  
Where item (b) of Box No. IX does not apply, enter Total number of sheets }

b1 first 30 sheets ..... b1  
b2 0 x 9.00 = 0.00 b2  
number of sheets fee per sheet

b3 additional component (only if sequence listing part of description is filed in computer readable form under Section 801(a)(i), or both in that form and on paper, under Section 801(a)(ii)):

400 x \_\_\_\_\_, = b3  
fee per sheet

Add amounts entered at b1, b2 and b3 and enter total at B ..... 0.00 B

**Designation Fees**

The international application contains 116 designations.

5 x 88.00 = 440.00 D  
number of designation fees amount of designation fee  
payable (maximum 5)

Add amounts entered at B and D and enter total at I ..... 440.00 I

(Applicants from certain States are entitled to a reduction of 75% of the international fee. Where the applicant is (or all applicants are) so entitled, the total to be entered at I is 25% of the sum of the amounts entered at B and D.)

4. FEE FOR PRIORITY DOCUMENT (if applicable) ..... P

5. TOTAL FEES PAYABLE ..... 1,380.00

Add amounts entered at T, S, I and P, and enter total in the TOTAL box

The designation fees are not paid at this time.

**MODE OF PAYMENT**

authorization to charge  postal money order  cash  coupons  
 cheque  bank draft  revenue stamps  other (specify):

**AUTHORIZATION TO CHARGE (OR CREDIT) DEPOSIT ACCOUNT**

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Receiving Office: RO/ US

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Date: JULY 31, 2002

Name: Ronald H. Kurdyla

Signature: R. H. Kurdyla